ORDER NO. RD83085377C3

Service Manual

Radio Cassette

RX-S70

FM-AM-FM Stereo Radio Cassette Recorder

■ SPECIFICATIONS

General:

Power Requirement:	Battery; 3V (two "AA" Size Penlight Batteries) (National UM-3 or equivalent)
Power Output:	60mW (30mW×2)...RMS (max.)
Input:	MIC; sensitivity 0.25mV/applicable microphone impedance 200~600Ω
	DC IN; 3V
Output:	HEADPHONES; 32Ω
Dimensions:	84mm(W)×113mm(H)×35mm(D) ($3^5/_{16}$×$4^7/_{16}$×$1^3/_8$)"
Weight:	Main Unit 348g (12 oz.) without batteries
	Headphones 60g (2.12 oz.)

Radio Section:

Radio Frequency Range:	FM; 88~108MHz
	AM; 525~1605kHz (571~187m)
Intermediate Frequency:	FM; 10.7MHz
	AM; 455kHz
Sensitivity:	FM; 2μV (−3dB Limit Sens)
	AM; 224μV/m/0.5mW output

Tape Deck Section:

Frequency Response:	50~10,000Hz (with normal tape)
	50~13,000Hz (with Metal tape)
Recording System:	AC bias, MAGNET erase
Tape Speed:	4.8cm/s, ($1^7/_8$ ips)
Wow and Flutter:	Forward 0.23% (WRMS)
	Reverse 0.15% (WRMS)
Program Time:	1 hour with C-60 cassette tape
Track System:	4-track 2 channel stereo recording and playback

Headphones:

Input:	40mW (max.)
Impedance:	32Ω
Connection Cord:	1.35m ($53^5/_{32}$")

Specifications are subject to change without notice.

National

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

LOCATION OF CONTROLS AND COMPONENTS

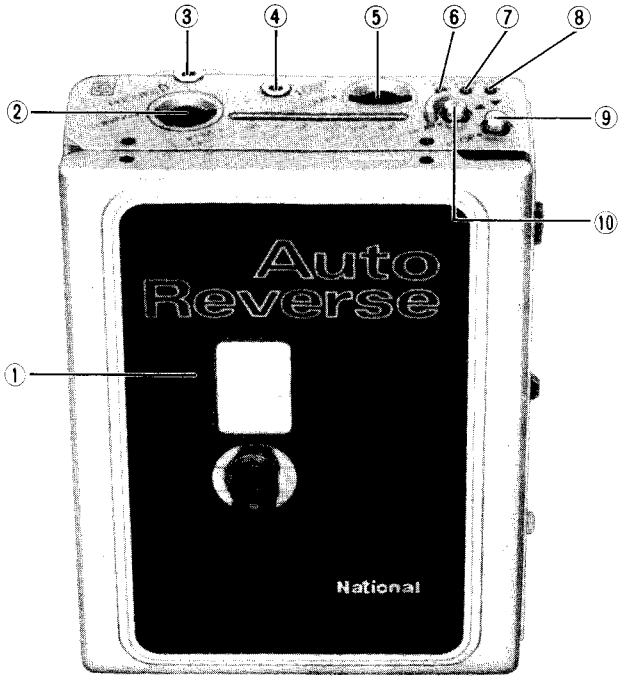


Fig. 1

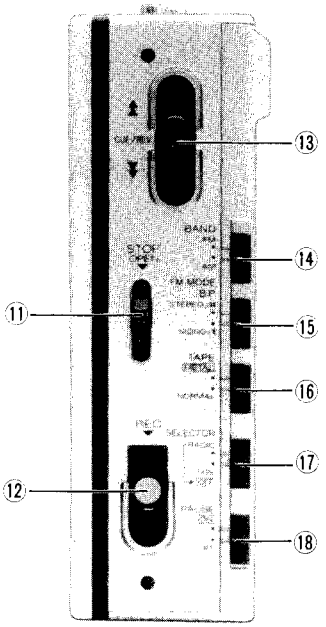


Fig. 2

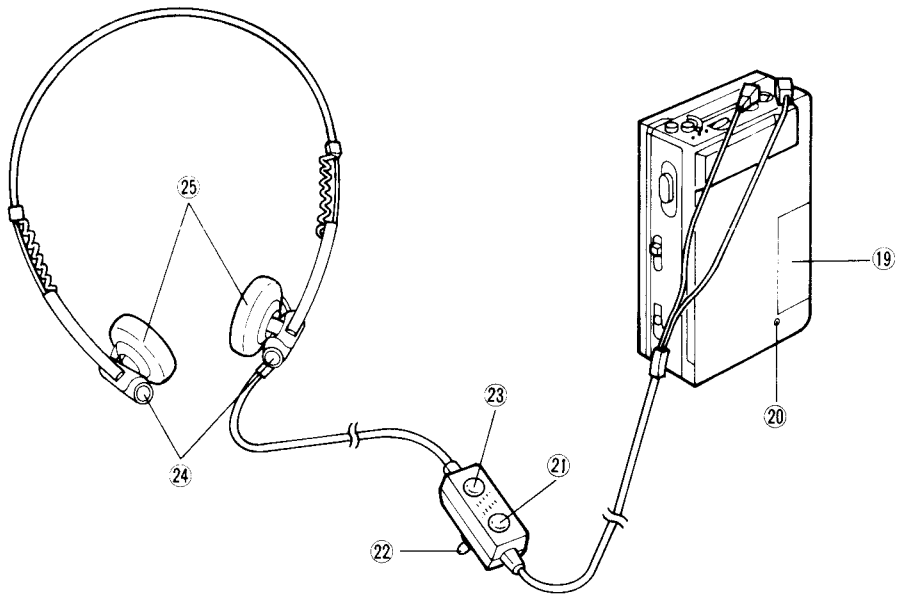


Fig. 3

① Cassette Compartment
② Tuning Control (TUNING)
③ Headphone Jack (PHONES), 32Ω φ2.5
④ Stereo Microphone Jack (STEREO MIC), 0.25mV, 200~600Ω φ2.5
⑤ Volume Control (VOLUME)
⑥ FM Stereo Indicator (FM ST)
⑦ Forward/Battery Check Indicator (FWD/BATT)
⑧ Reverse Indicator (REV)
⑨ Stop Button (STOP)
⑩ Playback Button (PLAY)
⑪ Stop/Open Button (STOP/OPEN)
⑫ Record Button (REC)
⑬ Fast Forward (Cue)/Rewind (Review) Button (CUE/REV)
⑭ Band Switch (FM, AM)
⑮ FM Mode/Beat Proof Switch (STEREO/II, MONO/I)
⑯ Tape Switch (METAL, NORMAL)
⑰ Function Switch (RADIO, TAPE/OFF)
⑱ Pause Switch (ON, OFF)
⑲ Battery Compartment
⑳ DC Input Jack (DC IN 3V ⊖—●— ⊕)
㉑ Reverse Switch (REVERSE)
㉒ Clip
㉓ Pause Switch (PAUSE)
㉔ Binaural Microphones
㉕ Exclusive Stereo Headphones

SCHEMATIC DIAGRAM MODEL RX-S70

IC1 **AN7216** FM FRONT END

Q101, 201 **2SC1623** SWITCHING

Q1 **2SK160** AM RF AMP

Q2 **2SC2295** FM IF AMP

Q102, 202 **2SD1328** SWITCHING

IC2 **AN7226S** FM/AM IF AMP.DET AM OSC.MIX

IC5 **RVITK10562** MIC AMP/REC AMP

D9 **MA165** SWITCHING

IC3 **RVIBA1360F** FM MPX

D1 **RVDPR2434DF** FM ST IND

IC6 **RVITA7688F** POWER AMP

Q309 **2SC1623** SWITCHING

■ HEADPHONES

Sa: Reverse Switch in "OFF" Position. (1...OFF, 2...ON)

Sb: Pause Switch in "OFF" Position. (1...OFF, 2...ON) (Refer to Page 9.)

MOTOR

SERVO CIRCUIT

(200~600Ω)

J1 EXT. MIC L, R

0.25mV

E. HEAD

R/P HEAD

FWD Lch REV

FWD Rch REV

DC IN J3

BATT 3V (UM-3X2)

HEAD PHONE (32Ω) J2

D7,8 **MA165** SWITCHING

Q305 **2SC1623** SWITCHING

Q307 **2SC1623** SWITCHING

Q308 **2SB624** PLUNGER DRIVE

Q301 **2SC1622** SWITCHING

IC4 **RVIBA3404F** HEAD AMP/HEAD SELECTOR

D4 **MA28WA** AOC

Q302 **2SD601** BIAS OSC

Q310 **2SC1623** SWITCHING

D2,3 **RVDPR2434DF** FWD/BATT, REV IND

Q303 **2SA812** SWITCHING

Q304 **2SC1623** SWITCHING

D5 **RVDKB165D** STABI

Q103, 203 **2SD1328** SWITCHING

D6 **MA151WK** SWITCHING

Q306 **2SA812** SWITCHING

Q311 **RVTDTC143TK** SWITCHING

DISASSEMBLY INSTRUCTIONS

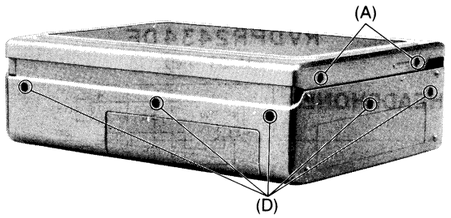


Fig. 4

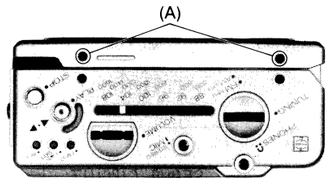


Fig. 5

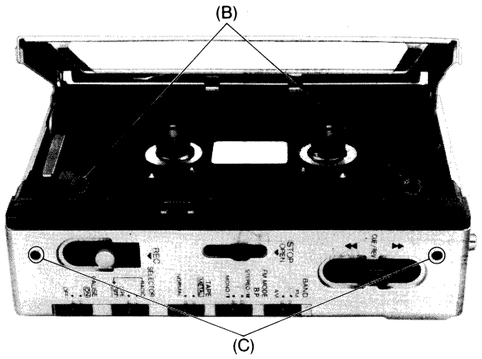


Fig. 6

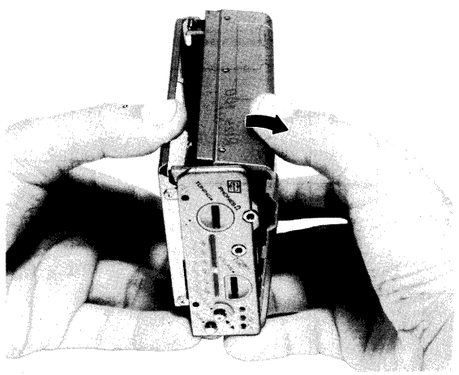


Fig. 7

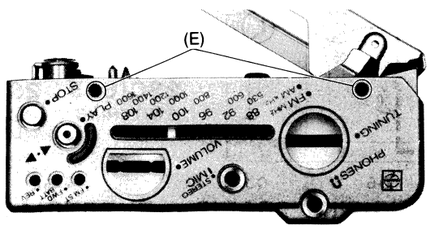


Fig. 8

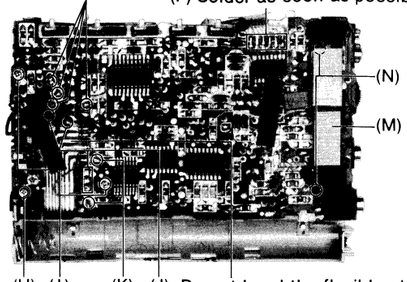


Fig. 9

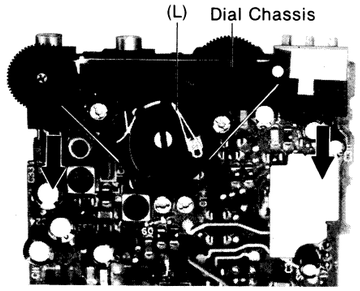
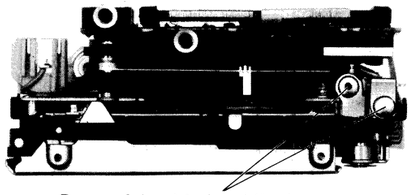


Fig. 10



Be careful not to bend the lever when remove the knob.

Fig. 11

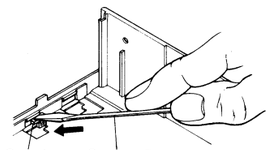
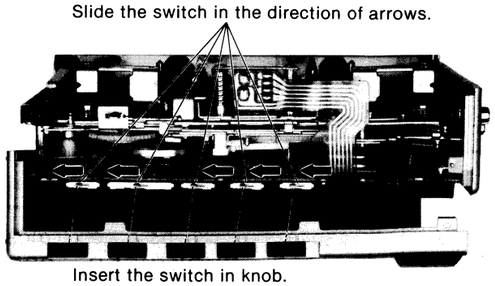


Fig. 12

■ TO ASSEMBLE CABINET BODY

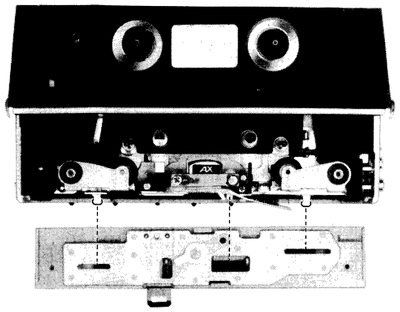
Slide the switch in the direction of arrows.



Insert the switch in knob.

Fig. 13

■ TO ASSEMBLE SIDE CABINET



Insert the lever in knob.

Fig. 14

■ PARTS ARRANGEMENT

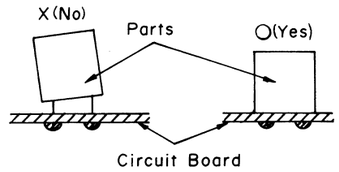


Fig. 15

1. Solder the parts (C104, T2, T3, L1, L4, Z1) as shown in fig. 15.
2. Lay the parts (C16, 38, 218 and CF1) down as shown in fig. 16.
3. Check all parts are located inside of the circle indicated by arrows as shown in fig. 16.

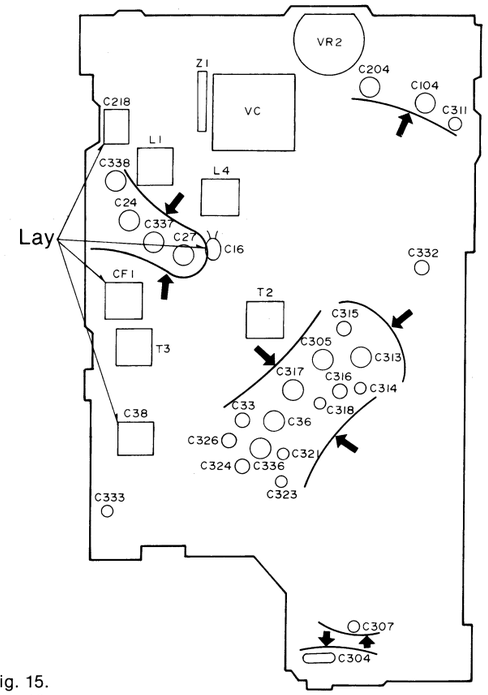


Fig. 16

Ref. No.	Procedure	Shown in Fig. —.	To remove —.	Remove —.
1	1, 2	—	Cassette Cover	Open the cassette cover
2		4, 5		Screw (1.6×2.5) .....(A)×4
3	1∼3	6	Head Cover	Screw (1.6×2.5) .....(B)×2
4	1∼4	6	Side Cabinet	Screw (1.6×2.5) .....(C)×2
5	1∼6	4	Cabinet Body	Screw (1.6×2.5) .....(D)×5
6		7		Remove it in the direction of arrow.
7	1∼7	8	Upper Side Cabinet	Screw (1.6×2.5) .....(E)×2
8	1∼11	9	Circuit Board	Unsolder flexible circuit board ...(F)
9		9		Unsolder plunger and leaf switch leadwire.....(G)×4
10		9		Screw (1.6×2.5) .....(H)×1
11		9		Screw (1.6×2.5) .....(I)×2
12	1∼12	9	Servo Circuit Board	Unsolder servo circuit board .....(J)×5
13	1∼14	9	Battery Compartment	Unsolder leadwires .....(K)×2
14		—		Pull out the battery compartment.
15	1∼18	10	Dial Chassis	Remove the dial cord .....(L)
16		9		Take off the wax and remove the core antenna. .....(M)
17		9		Screw (2×4) .....(N)×2
18		10		Remove it in the direction of arrow while pulling.
19	1∼6, 19	12	Band, FM Mode etc. Knob	Push the catch in the direction of arrow.

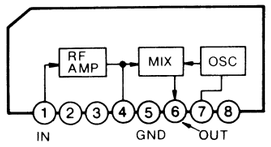
Notes:

1. S1: Band switch in "FM" position. (2...AM, 3...FM)
2. S2: FM Mode/Beat proof switch in "MONO/I" position. (2...MONO/I, 3...STEREO/II)
3. S3: Tape switch in "NORMAL" position. (2...NORMAL, 3...METAL)
4. S4-1, S4-2: Function switch in "TAPE/OFF" position. (1...RADIO, 2...TAPE/OFF)
5. S5: Pause switch.
6. S6: Playback switch.
7. S7: Auto reverse switch.
8. S8: Remote cancel switch.
9. S9: Record/Playback switch.
10. S10: Reverse switch.
11. VR1: VCO VR.
    VR2: Volume control VR.
    VR3: Bias current adjustment VR.
    VR4: Tape speed adjustment VR.
12. DC voltage measurements are taken with electronics voltmeter from negative terminal of battery.
    < >...FM, ( )...AM,
    ≪ ≫...Recording, [ ]...Reverse
13. Battery current
    No signal (Radio) 40mA
    Radio (at 0.5mW×2 output) 51mA
    Tape (at 0.5mW×2 output) 110mA

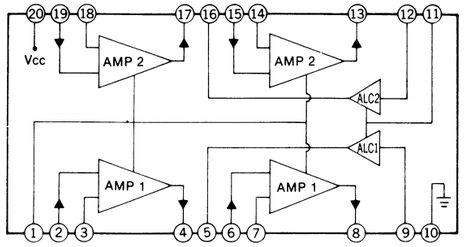
FM Signal Line
Playback (Reverse) Signal Line
Playback (Forward) Signal Line
Recording Signal Line
+ Voltage (Recording) Line
+ Voltage Line

■ IC BLOCK DIAGRAM

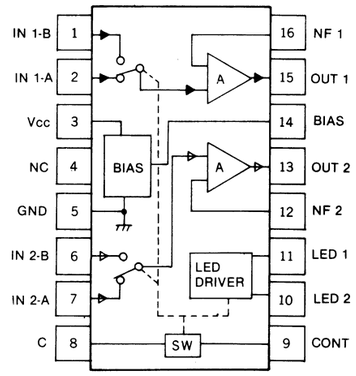
IC1 AN7216



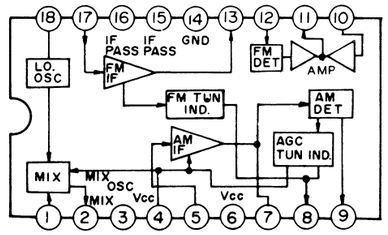
IC5 RVITK10562



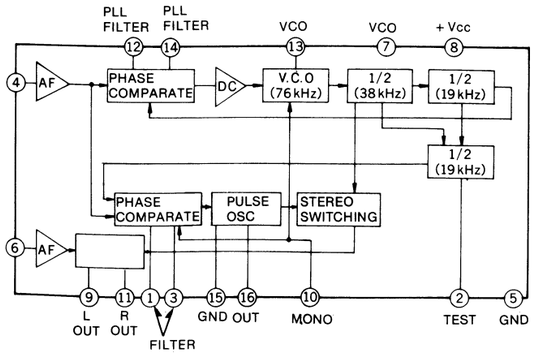
IC4 RVIBA3404F



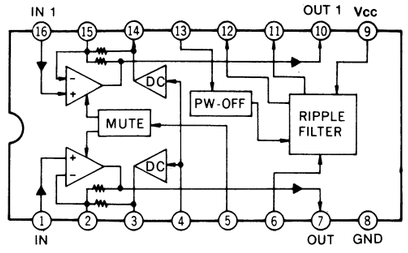
IC2 AN7226S



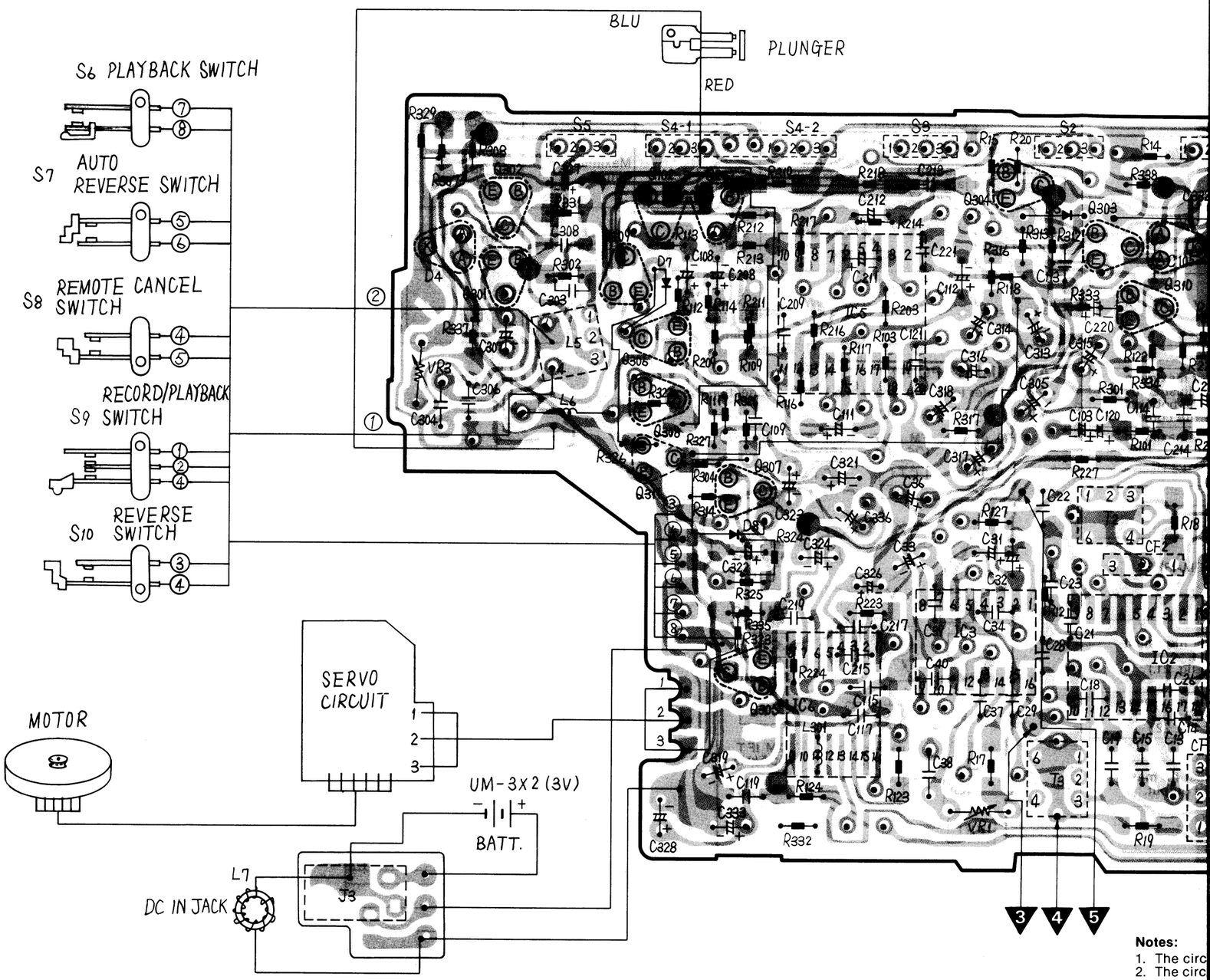
IC3 RVIBA1360F



IC6 RVITA7688F



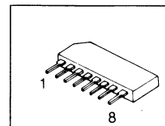
CIRCUIT BOARD AND WIRING CONNECTION DIAGR



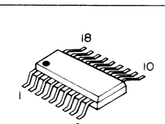
Notes:

1. The circ
2. The circ board.
3. The sym back sid
4. The sym

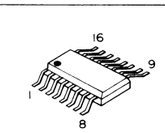
Varicap.	General	Zener	LED	Photo Diode
Anode / Cathode	Anode / Cathode	Anode / Cathode	Anode / Cathode	Cathode / Anode



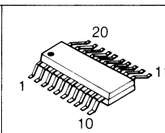
IC1



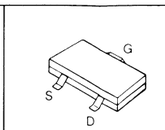
IC2



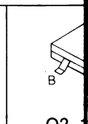
IC3, 4, 6



IC5

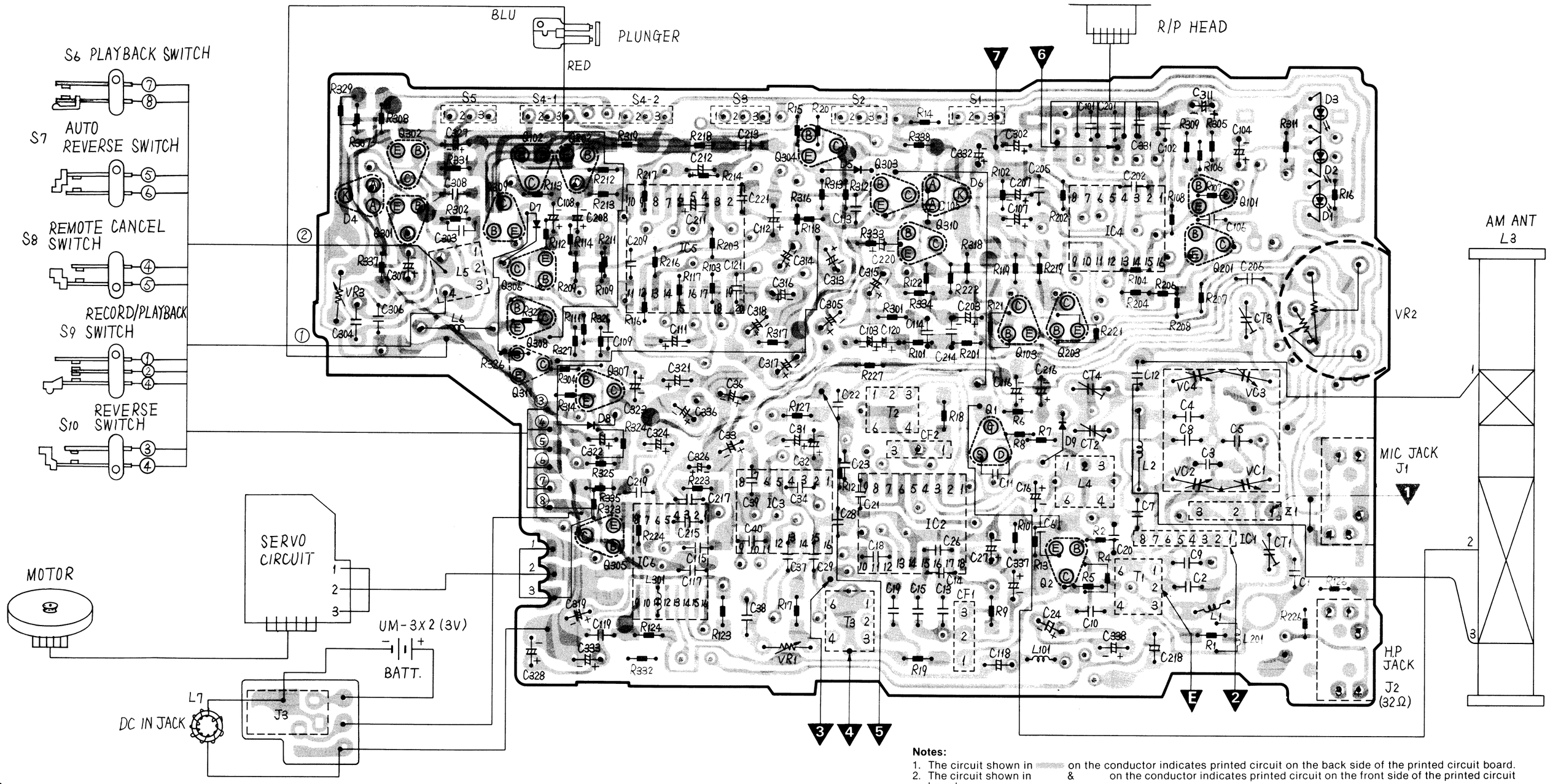


Q1



Q2,

CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM MODEL RX-S70



Notes:

1. The circuit shown in ▭ on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in ▭ & ▭ on the conductor indicates printed circuit on the front side of the printed circuit board.
3. The symbols (•) shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.
4. The symbols (◦) shown in the circuit board indicate connection points conductors on the front side of circuit board.

Varicap.	General	Zener	LED	Photo Diode
Anode / Cathode	Anode / Cathode	Anode / Cathode	Anode / Cathode	Cathode / Anode

IC1	IC2	IC3, 4, 6	IC5	Q1	Q2, 101~103, 201~203, 301~311	D1~3	D4, 6	D5	D7~9
1 … 8	18 … 10 / 1 … 9	16 … 9 / 1 … 8	20 … 11 / 1 … 10	G, S, D	C, B, E	Cathode / Anode	Cathode / Anode / Anode	Anode / Cathode	Cathode / Anode

MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

1. Set volume control to maximum.
2. Set FM mode switch to stereo.
3. Set band switch to AM or FM.
4. Set tape switch to normal.
5. Set function switch to radio.
6. Set power source voltage to 3V DC.
7. Output of signal generator should be no higher than necessary to obtain an output reading.

■ AM ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS	SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
		AM-IF ALIGNMENT					
(1)	AM	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455kHz 30% Mod. at 400Hz	Point of non-interference. (on/ about 600kHz)	Output meter across head-phone jack.	T2 (AM IFT)	Adjust for maximum output.
		AM-RF ALIGNMENT					
(2)	AM	〃	550kHz	550kHz (Refer to Fig. 20.)	Output meter across head-phone jack.	L4 (AM OSC Coil) (*1) L3 (AM ANT Coil)	Adjust for maximum output. Adjust L3 by moving coil bobbin along ferrite core.
(3)	AM	〃	1,500kHz	1,500kHz (Refer to Fig. 20.)	〃	CT4 (AM OSC Trimmer) CT3 (AM ANT Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).

(*1) Cement antenna bobbin with wax after completing alignment.

■ FM ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS	SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
		FM-IF ALIGNMENT					
(1)	FM	High side thru. 0.001μF to test point Ⓕ. Negative side to test point Ⓔ.	10.7MHz (SWP.)	Point of non-interference. (on/ about 90MHz)	Connect vert. amp. of scope to test point Ⓕ. Negative side to test point Ⓓ.	T1 (FM 1st IFT)	Adjust for maximum amplitude. (Refer to fig. 21.)
(2)	FM	〃	〃	〃	〃	T3 (FM 2nd IFT)	Adjust for maximum amplitude. (Refer to fig. 22.)
		FM-RF ALIGNMENT					
(3)	FM	Connect to test point Ⓓ through FM dummy antenna. Negative side to test point Ⓔ.	87.5MHz	Variable capacitor fully closed.	Output meter across head-phone jack.	L2 (FM OSC Coil)	(*2) Adjust for maximum output.
(4)	FM		108MHz	Variable capacitor fully open.	〃	CT2 (FM OSC Trimmer)	〃
(5)	FM		90MHz	Tune to signal.	〃	L1 (FM ANT Coil)	〃
(6)	FM		106MHz	〃	〃	CT1 (FM ANT Trimmer)	(*2) Adjust for maximum output. Repeat steps (3)~(6).

(*2) Three output responses will be present; proper tuning is the center frequency.

■ SEPARATION ALIGNMENT

ITEM	FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
Adjustment of pilot signal.	90MHz, 60dB Ⓓ...(+) Ⓔ...(−)	Ⓕ ...(+) Ⓓ ...(−)	VR1	19kHz	Adjust VR1, for 19kHz (±150Hz) reading on electronics counter.

■ TAPE ADJUSTMENT

Make sure to connect a load resistor (32Ω) to headphone jack as shown in Fig. 17 for following adjustment.

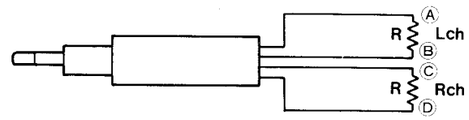


Fig. 17

ITEM	LOAD CONNECTION	INPUT	MEASUREMENT POINT	SPECIFICATION	ADJUSTMENT POINT	REMARKS
Azimuth	Connect a 32Ω resistor to headphone jack as shown in Fig. 17	QZZCFM (8kHz, −20dB)	Ⓐ...(+) Ⓑ...(−) Lch Ⓒ...(+) Ⓓ...(−) Rch (Refer to Fig. 17)	Maximum output	Azimuth screw A...FWD B...REV (Refer to Fig. 19)	Playback mode. Confirm that the difference between FWD and REV is within ±6dB.
Bias current	〃	Use metal tape	Ⓖ...(+) Ⓕ...(−)	Normal 2±0.25mV	Normal VR3	Record mode. Beat proof switch → II Tape selector → Normal
Tape speed	〃	QZZCWAT (3kHz)	Ⓐ...(+) Ⓑ...(−) Lch Ⓒ...(+) Ⓓ...(−) Rch (Refer to Fig. 17)	3030±20Hz	VR4	Plyaback mode. Adjust VR4 until 3030±20Hz is read on the counter.

■ ALIGNMENT POINT

• Please refer to Circuit Board and Wiring Connection Diagram which is located test point.

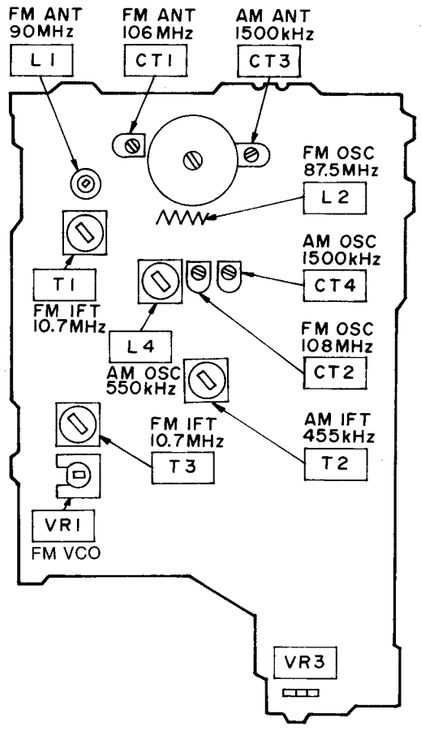


Fig. 18

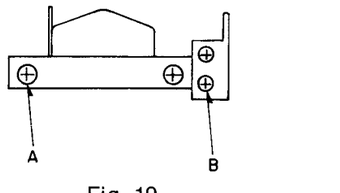


Fig. 19

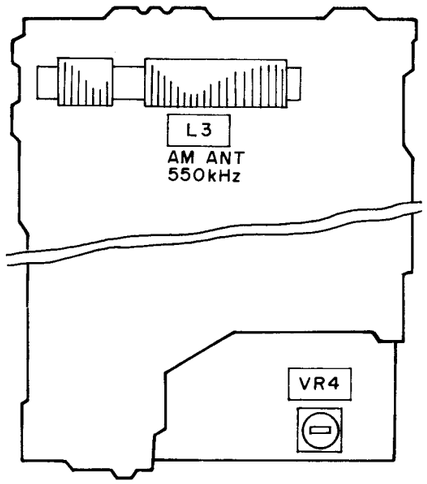


Fig. 18-1

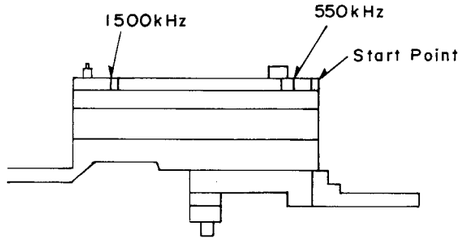


Fig. 20

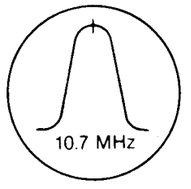


Fig. 21

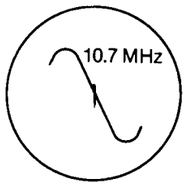
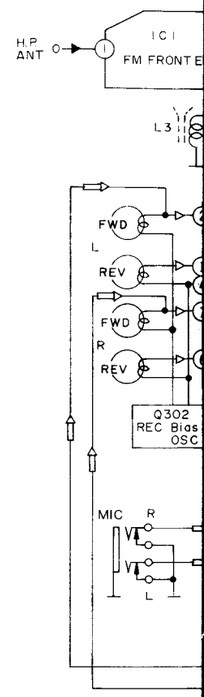


Fig. 22



■ REMOTE CON

• REVERSE

1. During playbac the left-channe
2. When the hea speaker circuit Q307 base thro
3. When Q307 is to turn Q308 o
4. When Q308 is running directi

• PAUSE

1. Q309 is cut o divided by both and R331.
2. When the hea speaker circuit
3. When Q309 is stop the motor
4. At the same tim which in turn c of the IC4.

Note 1

If operating butto playback button is ed, the pause swit

Note 2

If the headphone activated.

■ TAPE ADJUSTMENT

Make sure to connect a load resistor (32Ω) to headphone jack as shown in Fig. 17 for following adjustment.

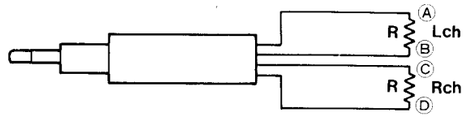


Fig. 17

ITEM	LOAD CONNECTION	INPUT	MEASUREMENT POINT	SPECIFICATION	ADJUSTMENT POINT	REMARKS
Azimuth	Connect a 32Ω resistor to headphone jack as shown in Fig. 17	QZZCFM (8kHz, −20dB)	Ⓐ...(+) Ⓑ...(−) Lch Ⓒ...(+) Ⓓ...(−) Rch (Refer to Fig. 17)	Maximum output	Azimuth screw A...FWD B...REV (Refer to Fig. 19)	Playback mode. Confirm that the difference between FWD and REV is within ±6dB.
Bias current	〃	Use metal tape	▼...(+) ▼...(−)	Normal 2±0.25mV	Normal VR3	Record mode. Beat proof switch → II Tape selector → Normal
Tape speed	〃	QZZCWAT (3kHz)	Ⓐ...(+) Ⓑ...(−) Lch Ⓒ...(+) Ⓓ...(−) Rch (Refer to Fig. 17)	3030±20Hz	VR4	Plyaback mode. Adjust VR4 until 3030±20Hz is read on the counter.

■ ALIGNMENT POINT

- Please refer to Circuit Board and Wiring Connection Diagram which is located test point.

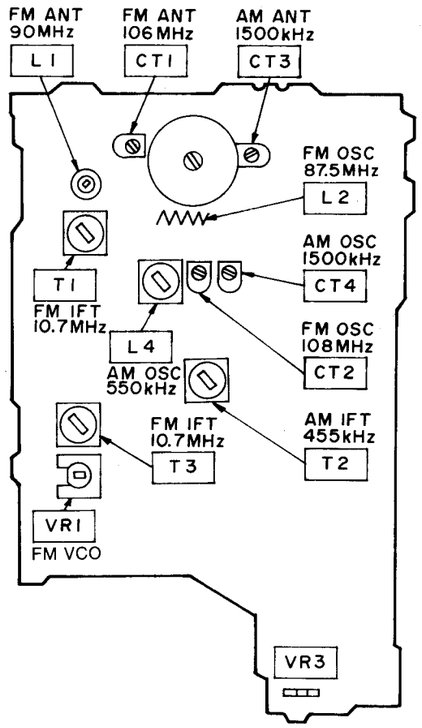


Fig. 18

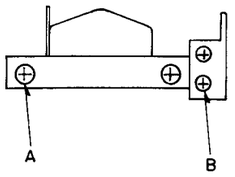


Fig. 19

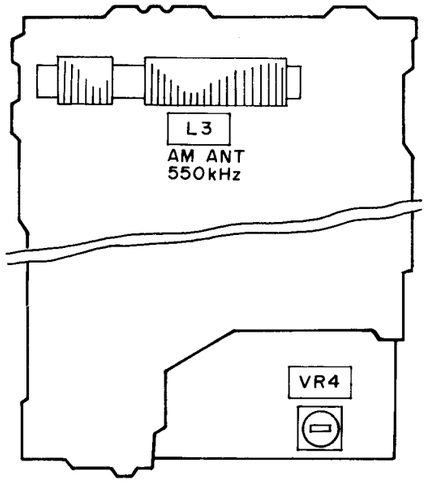


Fig. 18-1

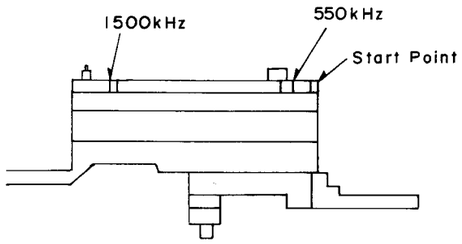


Fig. 20

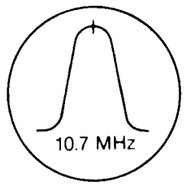


Fig. 21

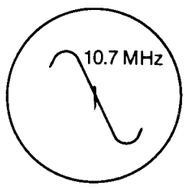


Fig. 22

BLOCK DIAGRAM

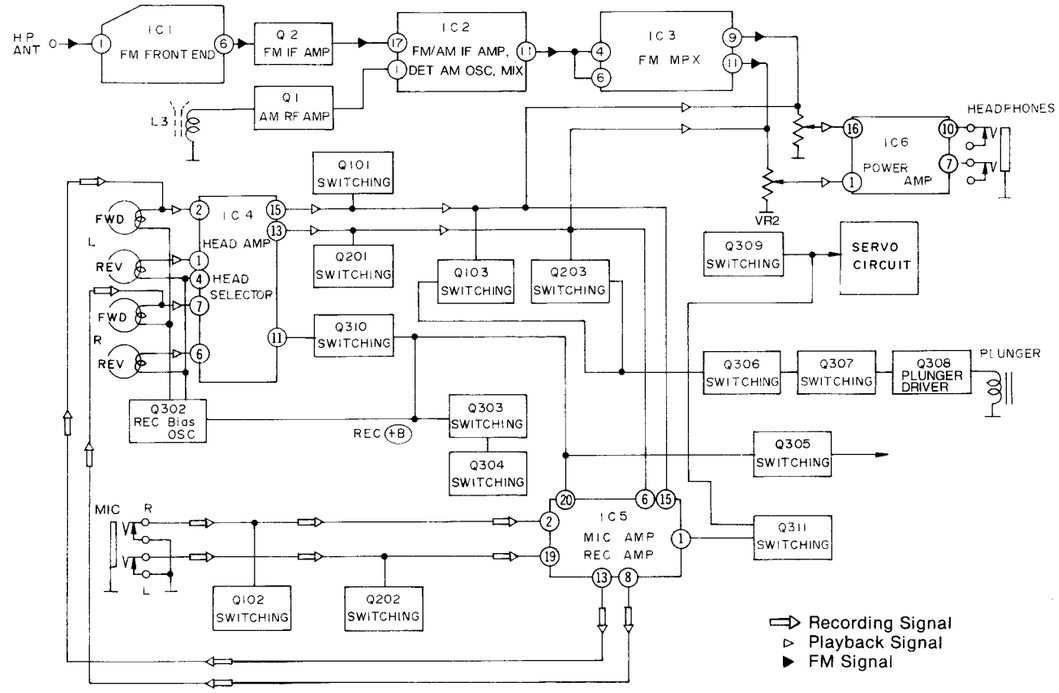


Fig. 23

A TECHNICAL TIP

■ REMOTE CONTROL OPERATION

• REVERSE

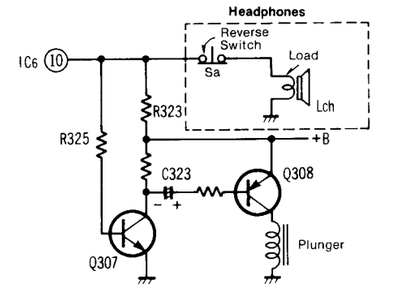
1. During playback, + B voltage is divided by the resistance of the left-channel speaker and R325 so that Q307 is cut off.
2. When the headphone's reverse switch is pressed, the speaker circuit opens and + B voltage is applied to the Q307 base through the R325 so that Q307 is turned on.
3. When Q307 is on, the base current of Q308 flows into C323 to turn Q308 on.
4. When Q308 is on, the plunger works to reverse the tape running direction automatically.

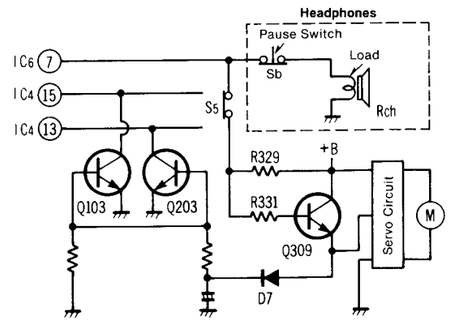
• PAUSE

1. Q309 is cut off during playback because + B voltage is divided by both the resistance of the right-channel speaker and R331.
2. When the headphone's pause switch is pressed, the speaker circuit opens and Q309 is turned on.
3. When Q309 is on, the IC of the servo circuit functions to stop the motor and the pause mode is activated.
4. At the same time, Q103 and Q203 are turned on through D7, which in turn cuts the audio signals from pins ⑬ and ⑮ of the IC4.

Note 1
If operating buttons are inoperative when pressed, or if the playback button is not released when the stop button is pressed, the pause switch is turned on.

Note 2
If the headphone wire is disconnected, the pause mode is activated.





DIAL THREADING

1. Turn the variable capacitor to fully clockwise.
2. Attach the spring to catch Ⓐ and Ⓑ.
3. Attach the bracket of dial cord to catch Ⓒ.
4. Attach the dial cord to catch Ⓓ, Ⓔ and Ⓧ.
5. Arrow marks (1~6) indicate correct order and direction of stringing dial cord.

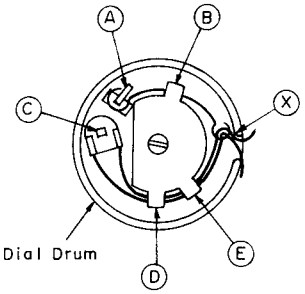


Fig. 24

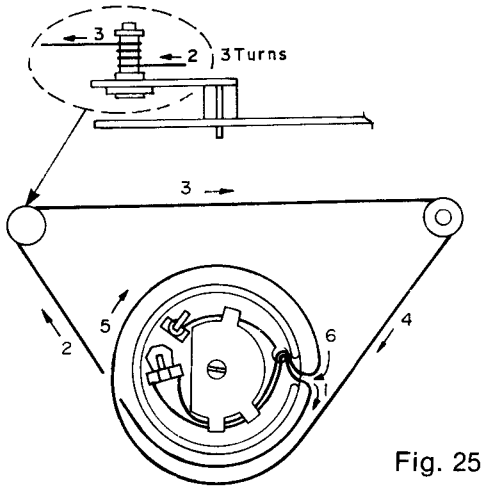


Fig. 25

DISASSEMBLY INSTRUCTIONS (Mechanism Parts)

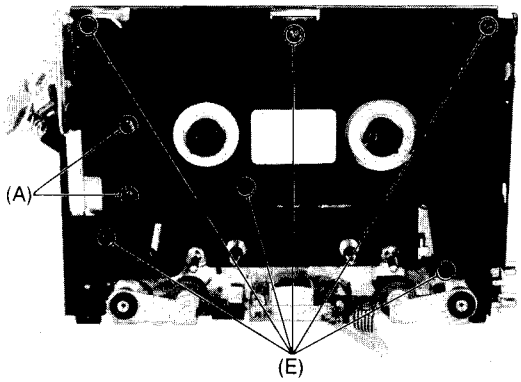


Fig. 26

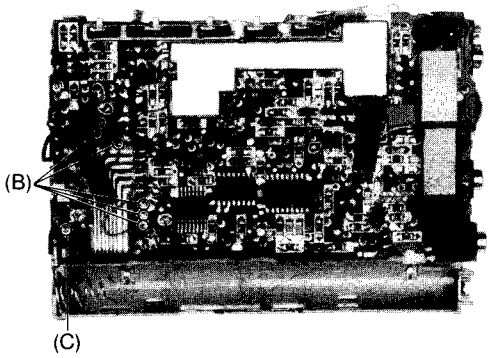


Fig. 27

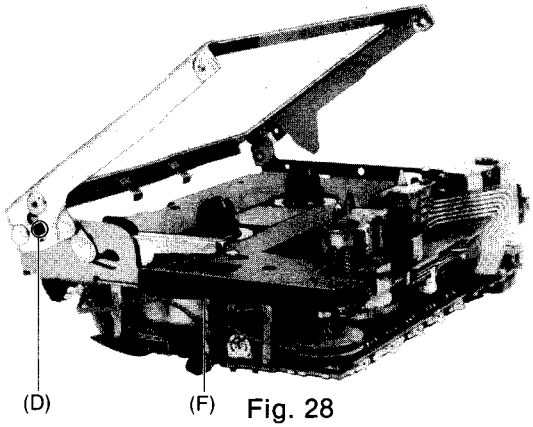


Fig. 28

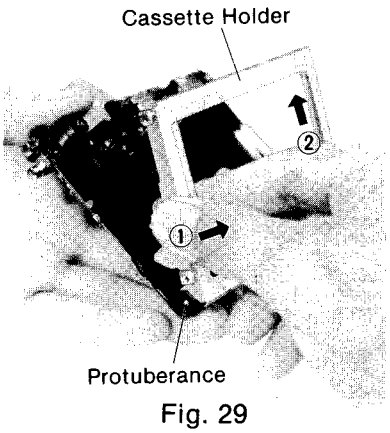


Fig. 29

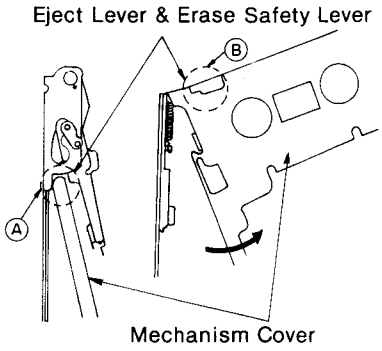


Fig. 30

Ref. No.	Procedure	Shown in Fig. —.	To remove —.	Remove —.
1	1~4	—	Motor	Remove the circuit board. (Refer to disassembly instructions)
2		26		Screw (1.6×1.6) .....(A)×2
3		27		Unsolder .....(B)×5
4		27		Screw (1.6×2.5) .....(C)×1
5	5, 6	28	Cassette Holder	Screw (1.6×2).....(D)×1
6		29		Push the holder in the direction of arrow ① and remove it in the direction of arrow ②.
7	5~9	26	Mechanism Cover	Screw (1.6×2).....(E)×6
8		28		Spring.....(F)
9		30		Remove the cover in order to Ⓐ and Ⓑ.

MECHANISM PARTS LOCATION

Takeup torque	23~38g-cm
Fast Forward torque	50g-cm over
Pressure of pinch roller	170~220g
Wow and flutter	Forward 0.23% (WRMS) Reverse 0.15% (WRMS)

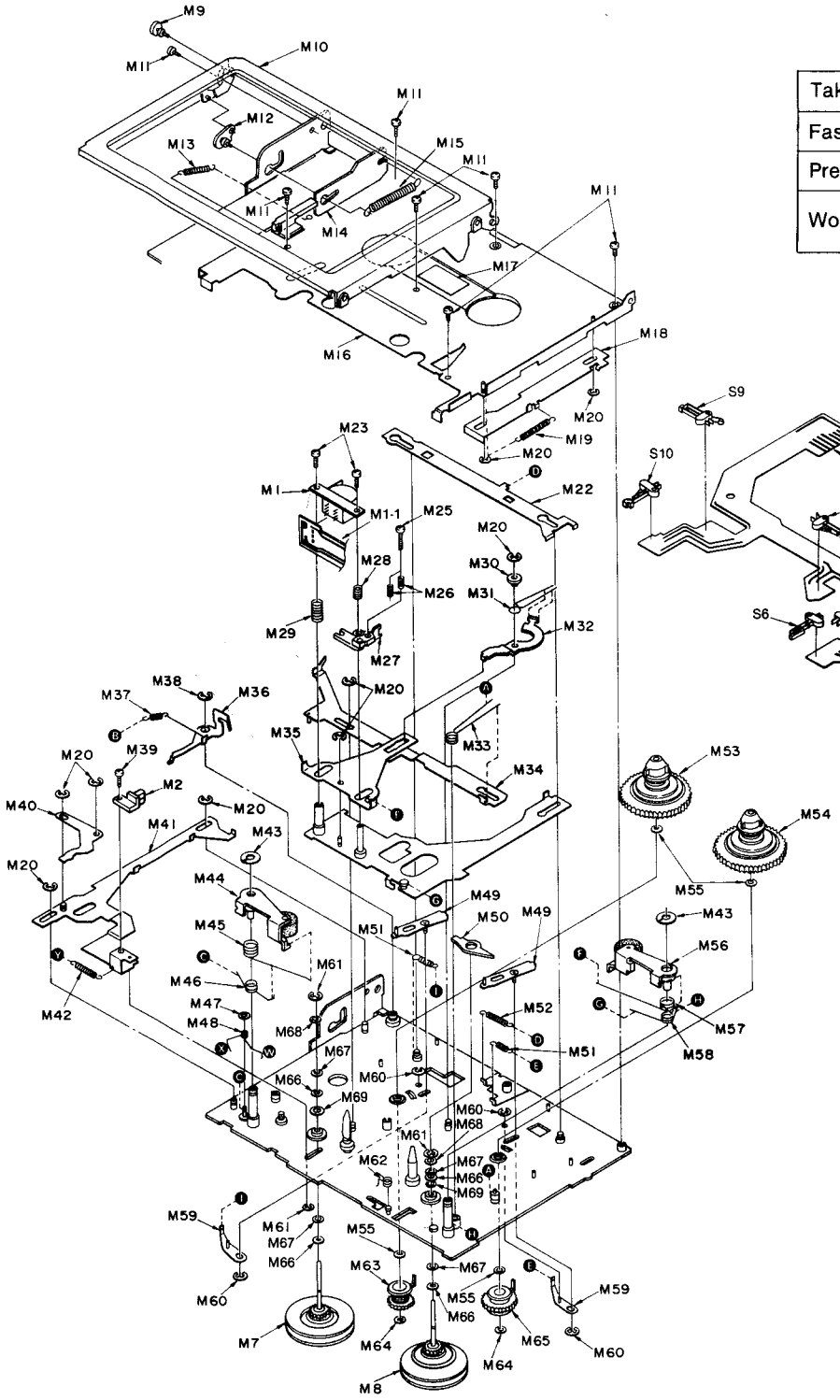


Fig. 31

■ FLYWHEEL ASSEMBLY

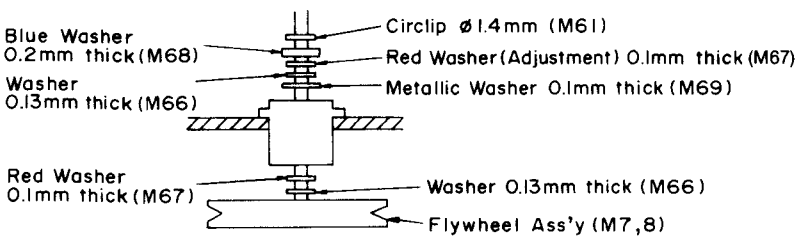
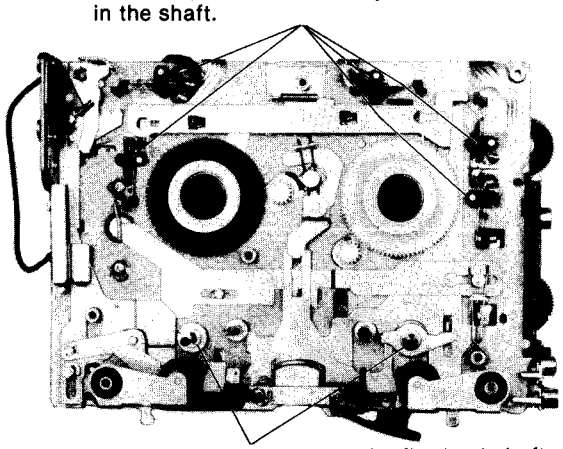


Fig. 32

■ ASSEMBLY INSTRUCTION

Be careful not to solder the leaf switch too much, because it is only inserted in the shaft.



Be careful not to damage the flywheel shaft when fix the circlip.

Fig. 33

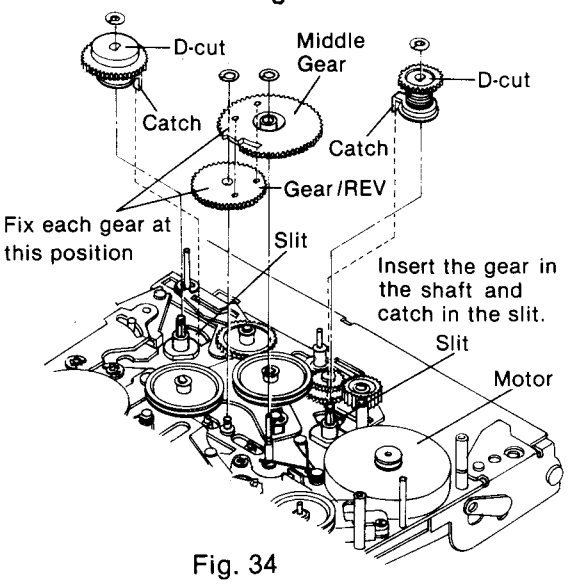
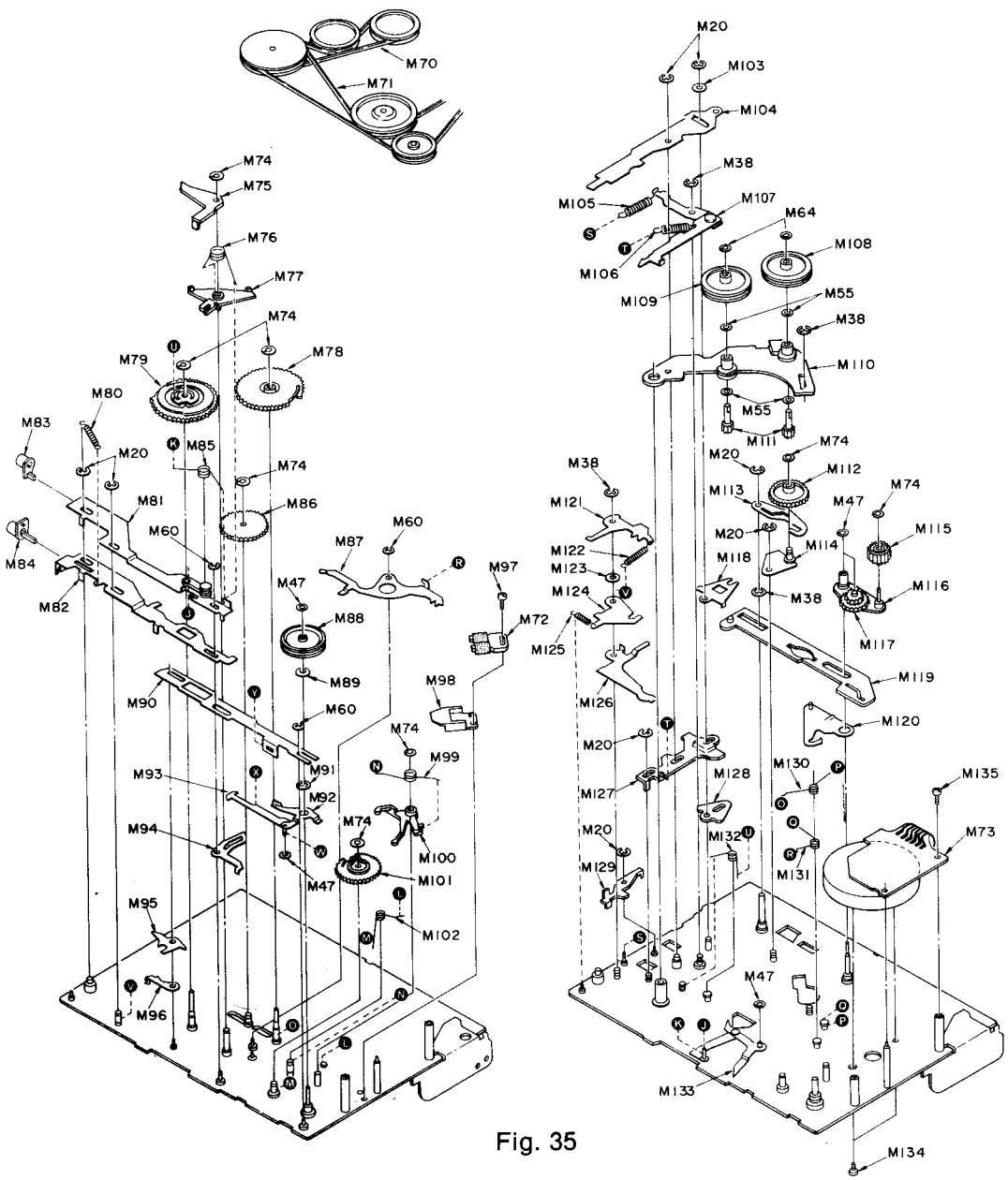


Fig. 34


M70
M71
M74
M75
M76
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M78
M80
M83
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M74
M81
M86
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M134

Fig. 35

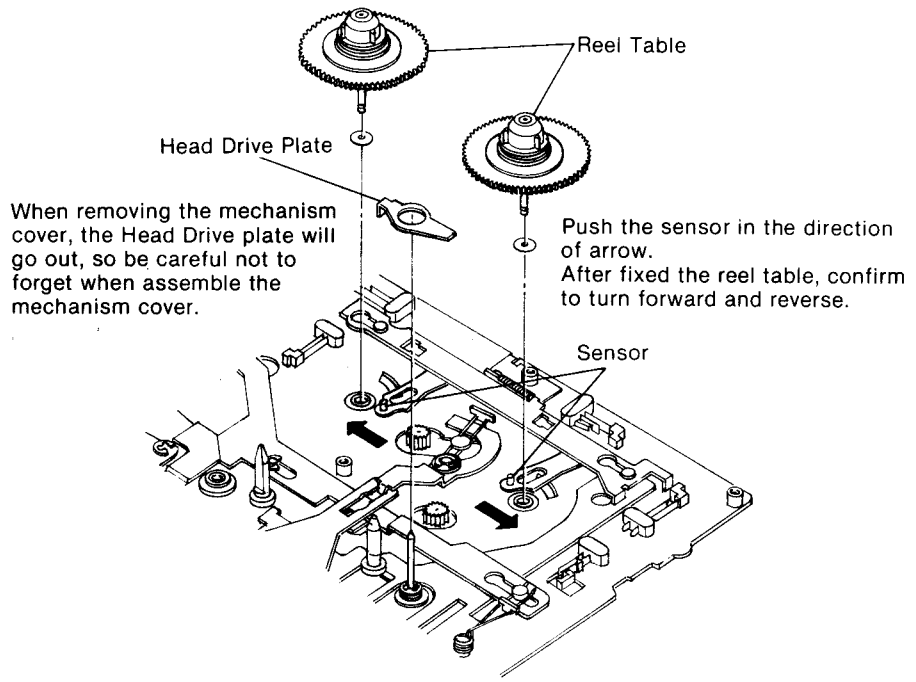
Reel Table
Head Drive Plate
When removing the mechanism cover, the Head Drive plate will go out, so be careful not to forget when assemble the mechanism cover.
Push the sensor in the direction of arrow.
After fixed the reel table, confirm to turn forward and reverse.
Sensor

Fig. 36

CABINET PARTS LOCATION

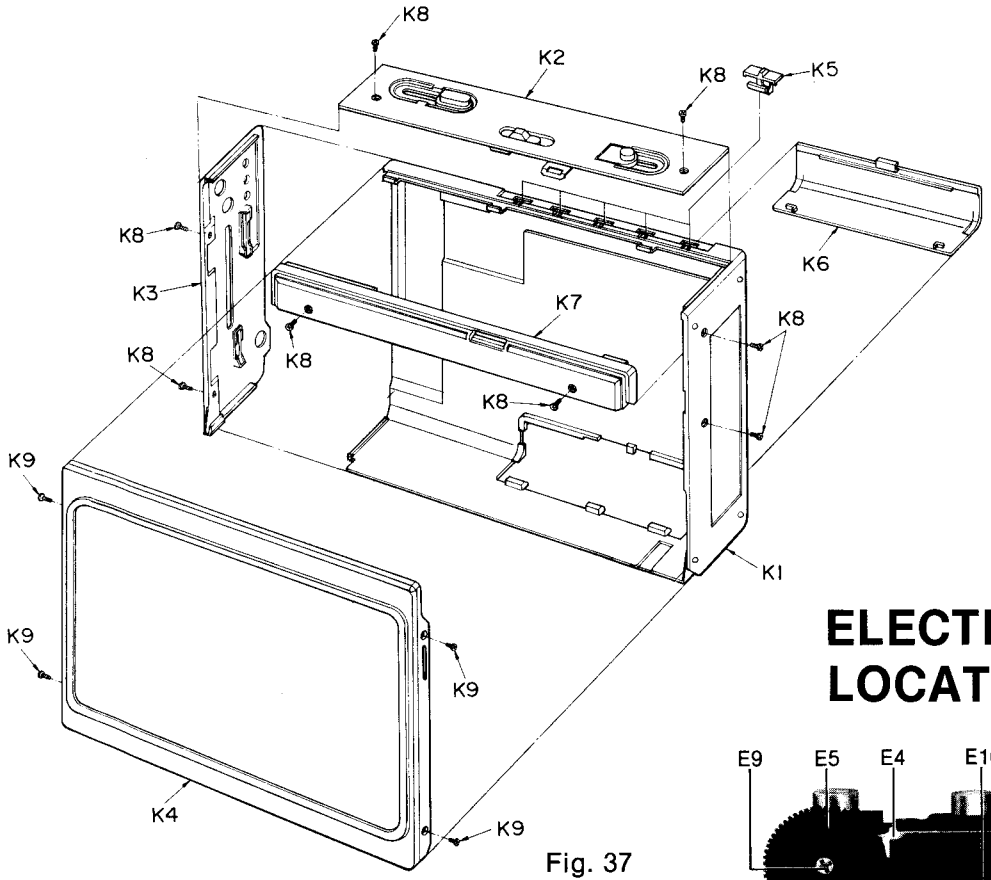

Fig. 37

ELECTRICAL PARTS LOCATION

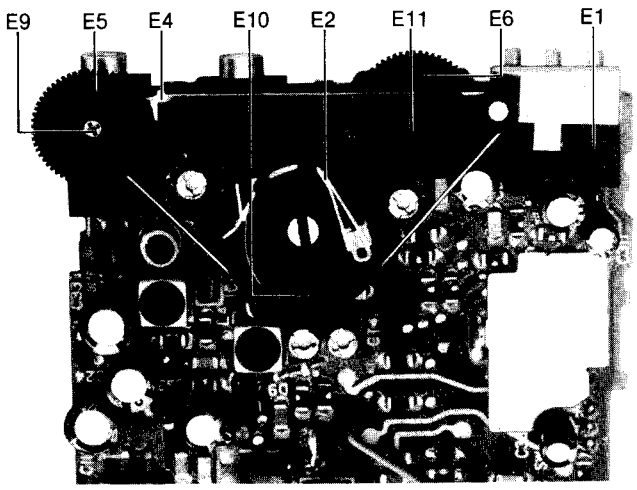

Fig. 39

HEADPHONE PARTS LOCATION

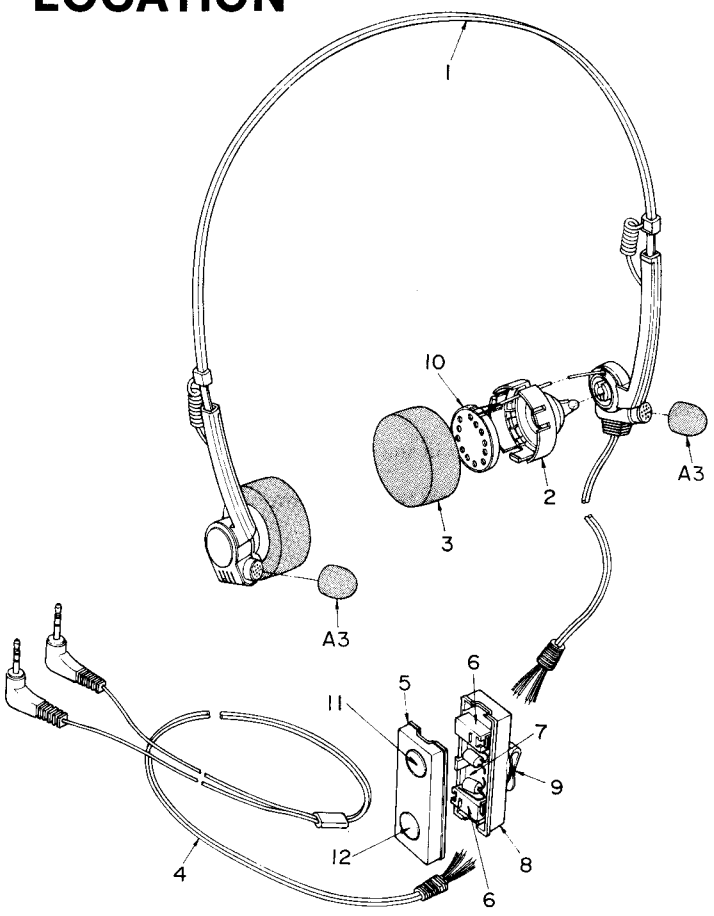

Fig. 38

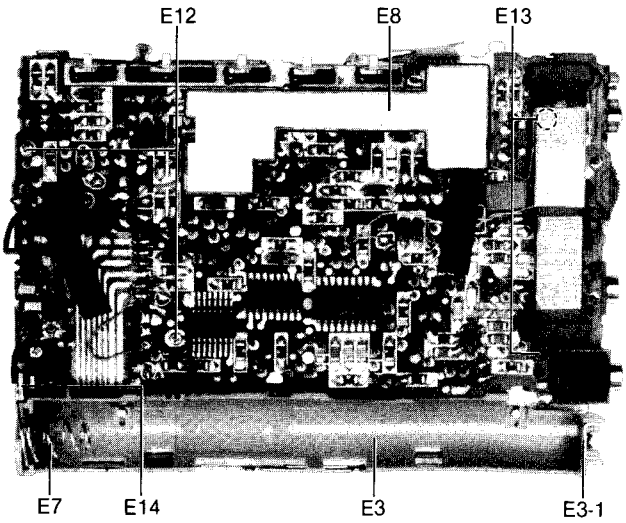

Fig. 40

ACCESSORIES AND PACKING MATERIALS

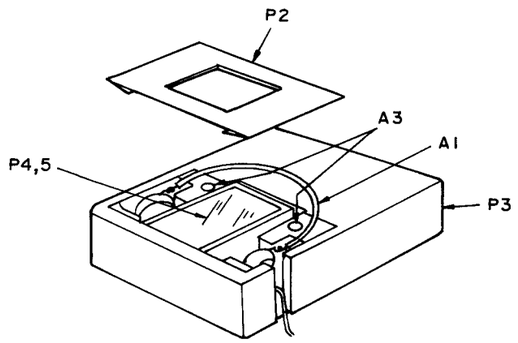

Fig. 41

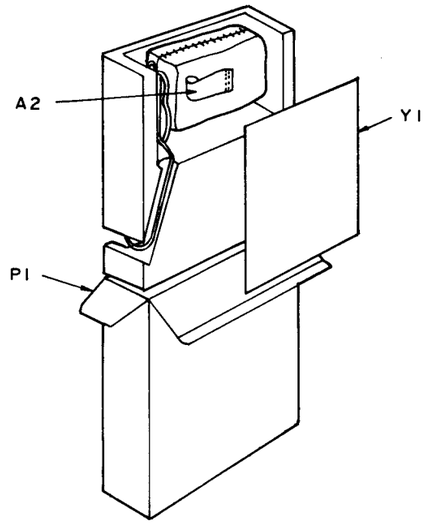

Fig. 42

■REPLACEMENT PARTS LIST RX-S70

(RD83085377C3)

Notes:

1. Important safety notice.
   Components identified by ⚠ mark have special characteristics important for safety.
   When replacing any of these components, use only manufacturer's specified parts.
2. The S mark indicates service standard parts and may differ from production parts.
3. RESISTORS & CAPACITORS
   Unless otherwise specified.
   All resistors are in OHMS (Ω) K=1000Ω, M=1000kΩ
   All capacitors are in MICRO FARADS (μF) P=μμF

*Type & Wattage of Resister

Type

ERC:Solid	ERX:Metal Film	ERW:Wirewound Resister
ERD:Carbon	ERG:Metal Oxide	ERS:Fusible Resister
RRD:Chip	ERO:Metal Film	ERF:Cement Resister

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W	

*Type & Voltage of Capacitor

Type

ECFW:Semi-conductor	ECCD,ECKD,ECBT:Ceramic
ECQS:Styrol	ECQM,ECQV,ECQG:Polyester
ECUX:Chip	ECEA,ECSZ :Electrolytic
ECMS:Mica	ECQP :Polypropylene

Voltage

ECQ Type	ECQG, ECQV, Type	ECSZ Type	Others			
1H: 50V	0,5: 50V	0F:3.15V	0J	:6.3V	1H,1V,50:	50V
2A:100V	1:100V	1A:10V	1A	:10V	1J	: 63V
2E:500V	2:200V	1V:35V	1C	:16V	2A	:100V
2H:500V		0J:6.3V	1E,25:25V			

Ref.No.	Part No.	Part Name & Description	Per Set	
		MECHANICAL PARTS		
M1	RJH3S1Z	R/P Head, Circuit Board	1	
M1-1	RUP1715Z	Flexible Circuit Board, R/P Head	1	
M2	EMHEA12	Erase Head	1	
M7	RFF23Z	Flywheel (B) Ass'y	1	
M8	RFF22Z	Flywheel (A) Ass'y	1	
M9	RFE118Z	Shaft, Cassette Holder	1	
M10	RFE119Z	Cassette Holder	1	
M11	XSN16+2	Screw, Holder, Mechanism, etc. M'tg	7	
M12	RFY268Z	Toggle Arm	1	
M13	RFS322Z	Spring, Eject	1	
M14	RFY269Z	Eject Lever	1	
M15	RFS323Z	Spring, Toggle Arm	1	
M16	RFE120Z	Cover, Mechanism	1	
M17	RFE54Z	Refrecting Plate	1	
M18	RFY270Z	Playback Safety Lever	1	
M19	RFS324Z	Spring, Playback Safety Lever	1	
M20	XUC15FT	Circlip, Erase Head Board etc.	17	S
M21	RUP1716Z	Flexible Circuit Board, Switch	1	
M22	RFY271Z	Auto Stop Plate	1	
M23	XSN2+5	Screw, Azimuth Adjustment	2	S
M25	XSN14+8	Screw, Azimuth Adjustment	2	
M26	RFS327Z	Spring, Guide Screw	2	
M27	RFE121Z	Tape Guide	1	
M28	RFS325Z	Spring, Tape Guide	1	
M29	RFS326Z	Spring, Azimuth Adjustment	1	
M30	RFX81Z	Spacer, FF/REW Arm	1	
M31	RFS328Z	Spring, Take Up Gear	1	

Ref. No.	Part No.	Part Name & Description	Per Set	
M32	RFY272Z	Playback Arm	1	
M33	RFS329Z	Spring, Reverse Plate	1	
M34	RFY273Z	Reverse Plate	1	
M35	RFY274Z	Drive Arm	1	
M36	RFY275Z	Erase Safety Lever	1	
M37	RFS330Z	Spring, Erase Safety Lever	1	
M38	XUC2FT	Circlip, Erase Safety Lever etc. M'tg	5	S
M39	XSN16+35	Screw, Erase Head M'tg	1	
M40	RFY276Z	Record Lever	1	
M41	RFY277Z	Erase Head Board	1	
M42	RFS331Z	Spring, Record Lever	1	
M43	RFN93Z	Washer, Pinch Roller Arm Ass'y	2	
M44	RFR15Z	Pinch Roller Arm(B) Ass'y	1	
M45	RFS332Z	Spring, Pinch Roller Arm(B) Ass'y	1	
M46	RFS333Z	Spring, Pinch Roller Arm	1	
M47	RFN94Z	Washer, Select Spring, etc.	5	
M48	RFS334Z	Spring, Select	1	
M49	RFY278Z	Sensor	2	
M50	RFY295Z	Plate, Head Drive	1	
M51	RFS335Z	Spring, Auto Stop	2	
M52	RFS336Z	Spring, Auto Stop	1	
M53	RFJ29Z	Supply Reel Table Ass'y	1	
M54	RFJ30Z	Take Up Reel Table Ass'y	1	
M55	RFN95Z	Washer, Reel Table Ass'y	8	
M56	RFR17Z	Pinch Roller Arm(A) Ass'y	1	
M57	RFS345Z	Spring, Pinch Roller Arm(A) Ass'y	1	
M58	RFS347Z	Spring, Head	1	
M59	RFY294Z	Auto Stop Arm	2	
M60	XUC12FT	Circlip, Auto Stop Arm etc. M'tg	7	S
M61	XUC14FT	Circlip, Playback Lever M'tg	3	
M62	RFS348Z	Spring, Lock	1	
M63	RFG46Z	Rewind Gear(C)	1	
M64	RFN96Z	Washer, FF Gear, etc.	4	
M65	RFG45Z	FF Gear (A)	1	
M66	RFN100Z	Washer, Flywheel Ass'y	4	
M67	RFN101Z	Red Washer, Flywheel Ass'y	4	
M68	RFN102Z	Blue Washer, Flywheel Ass'y	2	
M69	RFN103Z	Washer, Flywheel Ass'y	2	
M70	RFB33Z	Idler Belt	1	
M71	RFB34Z	Flywheel Belt	1	
M72	RSE101Z	Plunger	1	
M73	RJQ14Z	Motor Ass'y, Pulley , Govanor with Circuit Board	1	
M74	RFN98Z	Washer, Gear	8	
M75	RFY312Z	Trigger Arm	1	
M76	RFS356Z	Spring, Trigger	1	
M77	RFY313Z	Trigger Arm, Middle	1	
M78	RFG51Z	Middle Gear	1	
M79	RFG52Z	Gear, Head Board	1	
M80	RFS357Z	Spring, Pause Lever	1	
M81	RFY314Z	Playback Lever Ass'y	1	
M82	RFY315Z	Pause Lever	1	
M83	RBC486Z	Button, Playback Lever	1	
M84	RBC487Z	Button, Pause Lever	1	
M85	RFS358Z	Spring, Select	1	
M86	RFG53Z	Gear, Forward/Reverse	1	
M87	RFY316Z	Stop Arm	1	
M88	RFQ27Z	Return Pulley	1	
M89	RFN99Z	Washer, Return Pulley	1	
M90	RFY318Z	Record Slide Board	1	
M91	XUC25FT	Circlip, Drive Lever	1	S

Ref. No.	Part No.	Part Name & Description	Per Set
M92	RFY319Z	Remote Control Lever Ass'y	1
M93	RFY320Z	Selector Lever	1
M94	RFY321Z	Lever, Erase Head Board	1
M95	RFY322Z	Record Lock Lever	1
M96	RFY323Z	Detector Lever, Head Board	1
M97	XSN14+4	Screw, Plunger M'tg	1
M98	RFE124Z	Plunger Cover	1
M99	RFS359Z	Spring, Trigger	1
M100	RFY317Z	Remote Control Trigger Ass'y	1
M101	RFG54Z	Remote Control Cam Gear	1
M102	RFS360Z	Spring, Remote Control	1
M103	RFN97Z	Washer, FF/REW Operation Lever Ass'y	1
M104	RFY296Z	FF/REW Operation Lever Ass'y	1
M105	RFS349Z	Spring, Cue, Review	1
M106	RFS350Z	Spring, Cue, Review Slide Lever	1
M107	RFY297Z	Lock Plate Ass'y	1
M108	RFQ25Z	Take Up Pulley (A)	1
M109	RFQ26Z	Take Up Pulley (B)	1
M110	RFY298Z	Take Up Arm Ass'y	1
M111	RFG47Z	Take Up Gear	2
M112	RFG48Z	FF Gear (B)	1
M113	RFY299Z	FF Sub Arm	1
M114	RFY300Z	FF Lever Ass'y	1
M115	RFG49Z	Rewind Gear (A)	1
M116	RFY301Z	Rewind Lever	1
M117	RFG50Z	Rewind Gear (B)	1
M118	RFY302Z	Cue, Review Lever (A)	1
M119	RFY309Z	FF/REW Slide Lever	1
M120	RFY310Z	FF/REW Lock Lever	1
M121	RFY303Z	FF/REW Lock Lever	1
M122	RFS351Z	Spring, FF/REW Lock Lever	1
M123	RFX82Z	Spacer, Safety Lever	1
M124	RFY304Z	Erase Safety Lever	1
M125	RFS352Z	Spring, Safety Lever	1
M126	RFY305Z	Power Switch Lever	1
M127	RFY306Z	Cue, Review Slide Lever	1
M128	RFY308Z	Cue, Review Lever (B)	1
M129	RFY307Z	Power Switch Lever	1
M130	RFS353Z	Spring, Trigger Gear	1
M131	RFS354Z	Spring, FF/REW Pause	1
M132	RFS355Z	Spring, Head Board	1
M133	RFY311Z	Select Ass'y	1
M134	XSN16+16	Screw, Motor Ass'y M'tg	2
M135	XSN16+25	Screw, Govanor M'tg	1
		INTEGRATED CIRCUITS, TRANSISTORS AND DIODES	
IC1	AN7216	IC	1
IC2	AN7226S	IC	1
IC3	RVIBA1360F	IC	1
IC4	RVIBA3404F	IC	1
IC5	RVITK10562	IC	1
IC6	RVITA7688F	IC	1
Q1	2SK160K4	Transistor (Si)	1
Q2	2SC2295B	Transistor (Si)	1
Q101,201, 307,309,	2SC1623L6A	Transistor (Si)	7
Q102,103, 202,203	2SD1328S	Transistor (Si)	4
Q301	2SC1622AD16	Transistor (Si)	1
Q302	2SD601R	Transistor (Si)	1
Q303,306	2SA812M5	Transistor (Ge)	2
Q308	2SB624BV3	Transistor (Ge)	1
Q311	RVTDTC143TK	Transistor (Si)	1
D1~3	RVDPR2434D	Diode (Si)	3
D4	MA28WA	Diode (Si)	1
D5	RVDKB165D	Diode (Si)	1

Ref. No.	Part No.	Part Name & Description	Per Set
D6	MA161WK	Diode (Si)	1
D7∿9	MA165	Diode (Si)	3
		COILS AND TRANSFORMERS	
L1	RLO4N120	Coil, FM Antenna	1
L2	RLO4Y19	Coil, FM Oscillator	1
L3	RLF2Y29	Coil, AM Antenna	1
L4	RLO2A11	Coil, AM Oscillator	1
L5	RLO9A4	Coil, Bias Oscillator	1
L6	ELEMF101KA	Coil, Choke	1
L7	RLQZ5002	Coil, Choke	1
L101	ELJFA2R2JM	Coil, Choke	1
L201,301	ELJFA2R2JT	Coil, Choke	2
T1	RLI4A25	IFT, FM 1st	1
T2	RLI2A21	IFT, AM	1
T3	RLI4A26	IFT, FM 2nd	1
		VARIABLE RESISTORS	
VR1	EVNA6AA00B14	Variable Resistor, 10KΩ (B)	1 S
VR2	EVUBAAT50A54	Variable Resistor, 50KΩ (A)	1
VR3	EVNA1AA00B24	Variable Resistor, Pre-set, 20KΩ (B)	1
		VARIABLE CAPACITORS	
VC1∿4	RCV4LC9D	Tuning Capacitor	1
CT1∿4	RCVCTZ3110	Trimmer Capacitor	4
		CERAMIC FILTERS	
CF1	RVF107WAR	Ceramic Filter	1
CF2	RVFPFA455A	Ceramic Filter	1
		COMPONENT COMBINATION	
Z1	RXABPWB8	Component Combination	1
		SWITCHES	
S1∿3,5	RSS2A38Z	Switch, Band, Mode/ Beat Proof, Tape, Pause	4
S4	RSS2B38Z	Switch, Function	1
S6	RFA42Z	Switch, Playback	1
S7	RFA41Z	Switch, Auto Reverse	1
S8,10	RFA40Z	Switch, Remote Cancel	2
S9	RFA39Z	Switch, Record/Playback	1
		JACKS	
J1,2	RJJ1C6Z	Jack, Mic, Headphone	2
J3	RJJ1B3Z	Jack, DC IN	1
		CABINET PARTS	
K1	RKM785X	Cabinet Body (Black)	1
K1	RKM785X8	Cabinet Body (Silver)	1
K2	RYFXS70N	Side Cabinet Ass'y (Black)	1
K2	RYFXS70N2	Side Cabinet Ass'y (Silver)	1
K3	RYPXS70X1	Upper Side Cabinet Ass'y (Black)	1
K3	RYPXS70X	Upper Side Cabinet Ass'y (Silver)	1
K4	RYQXS70N	Cassette Cover Ass'y (Black)	1
K4	RYQXS70N2	Cassette Cover Ass'y (Silver)	1
K5	RBD217Z	Knob, Band, FM Mode, Tape etc.	5
K6	RKK253Z	Battery Compartment Cover (Black)	1
K6	RKK253Z8	Battery Compartment Cover (Silver)	1
K7	RKE436Z	Head Cover	1
K8	XQN16+A25FZ	Screw, Cabinet M'tg	11
K9	XQSR16+A25FZ	Screw, Cabinet M'tg	4
		ELECTRICAL PARTS	
E1	RZAXS70N	Dial Chassis Ass'y	1
E2	RZEXS70N	Dial Cord Ass'y	1
E3	RWBXS70N	Battery Compartment Ass'y (Black)	1
E3	RWBXS70N2	Battery Compartment Ass'y (Silver)	1
E3-1	RJC909Z	Terminal, Battery + Side	1

Ref. No.	Part No.	Part Name & Description	Per Set
E4	RDP873Z	Pointer, Dial	1
E5	RBT171Z	Knob, Tuning	1
E6	RBT172Z	Knob, Volume	1
E7	RJC749Z	Spring, Battery - Side	1
E8	RMC899Z	Shield Cover	1
E9	RHE5053Z	Screw, Tuning Knob M'tg	1
E10	RUS518Z	Spring, Dial Drum	1
E11	XSHR17+3	Screw, Volume Knob M'tg	1
E12	XQNR16+C25	Screw, Circuit Board M'tg	2
E13	XTNR2+4CFZ	Screw, Dial Chassis M'tg	2
E14	RUP1721Z	Circuit Board, DC IN	1
		ACCESSORIES	
A1	RD9267NBK	Headphone	1
A2	RQK96Z	Carrying Case	1
A3	RHR1227Z	Wind Shield	2
A4	RJN38Z	Cassette Tape	1
		PACKING MATERIALS	
P1	RPK1684Z	Gift Box	1
P2	RPN4199Z	Pad, Upper	1
P3	RPN4198Y	Pad, Bottom	1
P4	XZB20×20A04	Polyethylene Cover	1 S
P5	RPH425Z	Soft Sheet	1
		PRINTED MATERIAL	
Y1	RQX4209Z	Instruction Book	1
		HEADPHONE	
1	RWR8001A15	Head Band Ass'y	1
2	RWR8026A15	Housing	2
3	RWR8467A15	Ear Pad	2
4	RWR4926A15	Cord Ass'y	1
5	RWR8027A15	Cover, Switch Box	1
6	RWR4352A15	Switch, Reverse, Pause	2
7	RWR4803A15	Circuit Board	1
8	RWR8028A15	Switch Box	1
9	RWR6524A15	Clip, Switch Box	1
10	EAS2P08A	Speaker	2
11	RWR7021A15	Button, Pause	1
12	RWR7022A15	Button, Reverse	1

Ref. No.	Part No.	Value
	RESISTORS	
R1	RRD18XJ470	47
R2	RRD18XJ471	470
R4	RRD18XJ471	470
R5	RRD18XJ394	390K
R6	RRD18XJ102	1K
R7	RRD18XJ470	47
R8	RRD18XJ102	1K
R9	RRD18XJ471	470
R10	RRD18XJ221	220
R12	RRD18XJ153	15K
R13	RRD18XJ470	47
R14	RRD18XJ470	47
R15	RRD18XJ470	47
R16	RRD18XJ271	270
R17	RRD18XJ103	10K
R18	RRD18XJ102	1K
R19	RRD18XJ153	15K
R20	RRD18XJ102	1K
R101	RRD18XJ102	1K
R102	RRD18XJ822	8.2K
R103	RRD18XJ122	1.2K
R104	RRD18XJ154	150K
R106	RRD18XJ470	47
R107	RRD18XJ103	10K
R108	RRD18XJ682	6.8K
R109	RRD18XJ472	4.7K
R111	RRD18XJ333	33K
R112	RRD18XJ103	10K
R113	RRD18XJ103	10K
R114	RRD18XJ153	15K
R116	RRD18XJ561	560
R117	RRD18XJ683	68K
R118	RRD18XJ472	4.7K
R119	RRD18XJ472	4.7K
R121	RRD18XJ223	22K
R122	RRD18XJ103	10K
R123	RRD18XJ102	1K
R124	RRD18XK3R9	3.9
R126	RRD18XJ101	100
R127	RRD18XJ102	1K
R201	RRD18XJ102	1K
R202	RRD18XJ822	8.2K
R203	RRD18XJ122	1.2K
R204	RRD18XJ154	150K
R206	RRD18XJ470	47
R207	RRD18XJ103	10K
R208	RRD18XJ682	6.8K
R209	RRD18XJ472	4.7K
R211	RRD18XJ333	33K
R212	RRD18XJ103	10K
R213	RRD18XJ103	10K
R214	RRD18XJ153	15K
R216	RRD18XJ561	560
R217	RRD18XJ683	68K
R218	RRD18XJ472	4.7K
R219	RRD18XJ472	4.7K
R221	RRD18XJ223	22K
R222	RRD18XJ103	10K
R223	RRD18XJ102	1K
R224	RRD18XK3R9	3.9
R226	RRD18XJ101	100
R227	RRD18XJ102	1K
R301	RRD18XJ222	2.2K
R302	RRD18XJ101	100
R304	RRD18XJ102	1K
R305	RRD18XJ152	1.5K
R307	RRD18XJ220	22
R308	RRD18XJ180	18
R309	RRD18XJ222	2.2K
R311	RRD18XJ221	220
R312	RRD18XJ103	10K
R313	RRD18XJ222	2.2K
R314	RRD18XJ220	22
R316	RRD18XJ221	220
R317	RRD18XK475	4.7M

Ref. No.	Part No.	Value
R318	RRD18XJ681	680
R319	RRD18XJ681	680
R321	RRD18XJ473	47K
R322	RRD18XJ104	100K
R323	RRD18XJ222	2.2K
R324	RRD18XJ103	10K
R325	RRD18XJ683	68K
R326	RRD18XJ473	47K
R327	RRD18XJ681	680
R329	RRD18XJ102	1K
R331	RRD18XJ153	15K
R332	RRD18XJ330	33
R333	RRD18XJ222	2.2K
R334	RRD18XJ223	22K
R335	RRD18XJ103	10K
R337	RRD18XJ472	4.7K
R338	RRD18XJ102	1K
	CAPACITORS	
C1	ECUX1H101K	100P
C2	ECUX1E104MD	0.1
C3	ECUX1H120KC	12P
C4	ECUX1H103MD	0.01
C5	ECUX1H120KC	12P
C6	ECUX1H103MD	0.01
C7	ECUX1H070DC	7P
C8	ECUX1H220KC	22P
C9	ECUX1H103MD	0.01
C10	ECUX1H103ZF	0.01
C11	ECUX1H103ZF	0.01
C12	ECUX1H050DC	5P
C13	ECUX1H223MD	0.022
C14	ECUX1H101K	100P
C15	ECUX1H223MD	0.022
C16	ECSF0JE106	10
C18	ECUX1H100KC	10P
C19	ECUX1H331K	330P
C20	ECUX1H223MD	0.022
C21	ECUX1H070DC	7P
C22	ECUX1H103MD	0.01
C23	ECUX1E333MD	0.033
C24	ECEA0GKS221	220
C26	ECUX1H223MD	0.022
C27	ECEA0GKS101	100
C28	ECUX1E473MD	0.047
C29	ECUX1H681K	680P
C31	ECSE0JT225	2.2
C32	ECSE1AT105	1
C33	ECSF0GD475	4.7
C34	ECUX1E104MD	0.1
C36	ECEA0GKS221	220
C37	ECUX1E104MD	0.1
C38	RCQP2A102JA	0.001
C39	ECUX1H153MD	0.015
C40	ECUX1H153MD	0.015
C101	ECUX1H102MD	0.001
C102	ECUX1H102MD	0.001
C103	ECSE1CT474	0.47
C104	ECEA0GKS101	100
C105	ECUX1H332MD	0.0033
C106	ECUX1H223MD	0.022
C107	ECSE1AT105	1
C108	ECSE1AT105	1
C109	ECUX1H101K	100P
C111	ECSE1AT105	1
C112	ECSE1AT105	1
C113	ECUX1E104MD	0.1
C114	ECUX1E104MD	0.1
C115	ECUX1H102MD	0.001
C116	ECSE1CT474	0.47
C117	ECUX1H222MD	0.0022
C118	ECEA0GSN101	100
C119	ECUX1E224ZF	0.22
C120	ECSE1CT474	0.47
C121	ECUX1H331K	330P

Ref. No.	Part No.	Value
C201	ECUX1H102MD	0.001
C202	ECUX1H102MD	0.001
C203	ECSE1CT474	0.47
C204	ECEA0GKS101	100
C205	ECUX1H332MD	0.0033
C206	ECUX1H223MD	0.022
C207	ECSE1AT105	1
C208	ECSE1AT105	1
C209	ECUX1H101K	100P
C211	ECSE1AT105	1
C212	ECSE1AT105	1
C213	ECUX1E104MD	0.1
C214	ECUX1E104MD	0.1
C215	ECUX1H102MD	0.001
C216	ECSE1CT474	0.47
C217	ECUX1H222MD	0.0022
C218	ECEA0GSN101	100
C219	ECUX1E224ZF	0.22
C220	ECSE1CT474	0.47
C221	ECUX1H331K	330P
C302	ECSE1AT105	1
C303	ECUX1H680KC	68P
C304	RCQP2A102JA	0.001
C305	ECEA0GKS221	220
C306	ECUX1H103MD	0.01
C307	ECSF0GD106	10
C308	ECUX1H472MD	0.0047
C311	ECEA0GKS470	47
C313	ECEA0GKS101	100
C314	ECSF0GD106	10
C315	ECEA0GKS101	100
C316	ECEA0GKS470	47
C317	ECEA0GKS221	220
C318	ECSF0GD106	10
C319	ECEA0JKS220	22
C321	ECSF0GD106	10
C322	ECSE1AT105	1
C323	ECSF0GD106	10
C324	ECEA0GKS101	100
C326	ECEA0GKS470	47
C327	ECSE1AT105	1
C328	ECEA0GKS221	220
C331	ECUX1H331K	330P
C332	ECEA0GKS470	47
C333	ECSF1AE476	47
C336	ECSF0GD106	10
C337	ECSF0GD106	10
C338	ECEA0GKS221	220

Ref. No.	Part No.	Value

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